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SYSTEM AND METHOD FOR FILLING A POLYGON

Abstract of the Disclosure

The minimum number of rectangles required to fill a particular polygon and which meet input parameters including minimum stripe width, maximum stripe width, stripe overlap amount, maximum number of borders, and whether or not to merge adjacent borders, is determined by: (1) bordering, including computing a border width which is wide as possible, bordering all non-orthogonal polygons with one or more borders, merging borders when appropriate, halting bordering as soon as the interior can be efficiently filled using orthogonal fill rectangles; (2) filling, including filling the interior of the bordered non-orthogonal polygon or the unbordered orthogonal polygon with orthogonal paint stripes, filling, if possible, the uncovered area with a single least encompassing rectangle, otherwise generating orthogonal stripes using the minimum stripe width and where practical merging them with a previous adjacent stripe; and (3) processing, including locating any and all unfilled portions of the original polygon, applying steps (1) and (2) for areas which lie along the original polygon border, and applying step (2) for areas which do not lie along the original polygon border.